

Preface

The essays in this book collect some of the lectures I have given at various places. Although the lectures ranged over a wide array of topics, they had a single theme which reflected my deep interest in the role of symmetry and supersymmetry in quantum theory. As such they are mathematical as well as personal.

Symmetry and supersymmetry, especially in quantum theory, are expressed in the language of the theory of unitary representations. This is a subject of great intrinsic beauty and enters other parts of mathematics at a very deep level. Two of the greatest figures in its history are *Mackey* and *Harish-Chandra*. Their work (to use the words of Weyl) affords shade to large parts of present day mathematics and high energy physics. It is to their memory that this volume is lovingly dedicated.

The essays should perhaps be viewed like a stroll through a garden of ideas: quantum algebras, super geometry, unitary supersymmetries, differential equations, non-archimedean physics, are a few of the topics encountered along the way. My own mathematical education evolved out of interactions with Mackey and Harish-Chandra, and I conclude this volume with brief portraits of their work, embedded in the context of personal reminiscences.

Quite a large number of people have had a hand in shaping my views expressed in these essays. In the essays themselves I have made an effort to mention some of them. But I must acknowledge my deep gratitude here to my longtime friend and collaborator Don Babbitt for the hundreds of discussions on the topics discussed here, spread literally over a lifetime.

I am also indebted to Don Blasius, who, despite many demands, personal as well as professional, on his time, took a deep interest in these essays and made many suggestions for improvement. A first draft of a substantial part

of this book was written while my wife Veda and I were vacationing in the Dordogne, living in Don's house in May of 2009. The delights of rural France were a big inspiration for me and so I should thank Don and Peter, as well as Barry and Julie (not to mention Sukie!), for making life so pleasant in Chez Blasius.

Finally, I wish to thank Ann Kostant for the help and encouragement she has given me throughout this enterprise. It was her enthusiastic acceptance of my suggestion, made in the Spring of 2009, that Springer publish a book of essays collecting together some of the lectures I have given at various places, that was the genesis of this book. I really cannot thank her enough.

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